

IMMUNIZATION PRACTICES AND BELIEFS OF PHYSICIANS IN SUBURBAN COOK COUNTY, ILLINOIS

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ABSTRACT: This study was conducted to ascertain the vaccination beliefs and practices of physicians who provide care for low income children. Sixty-two (56.9%) of a sample of 109 physicians in suburban Cook County, Illinois responded to a mail survey. A majority of physicians reported a willingness to immunize during well child care, follow-up, and chronic illness visits; yet, a substantial lack of willingness to immunize given certain acute mild illnesses was reported. Twenty-six percent of providers did not routinely identify children who were behind in immunizations and only 16% had completed a chart audit in the past three years. Seventy-four percent were willing to provide all shots needed at a single visit. Misconceptions regarding true contraindications was found among the group. Missed well child visits were identified as the greatest barrier to complete immunization. Improvements in vaccination rates are expected if physicians utilize all types of medical encounters to monitor the immunization status of patients and provide vaccines using only true medical contraindications.

INTRODUCTION

Vaccination coverage estimates indicate that the number of pre-school-aged children who are fully immunized has increased. According to the 1994 National Immunization Survey, the estimated median vaccination coverage was 75% for children aged 19 to 35 months who received at least four doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP), three doses of poliovirus vaccine, and one dose of measles, mumps and

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This study was supported by a 1994 Joyce Foundation special project grant.

We wish to thank the physicians in suburban Cook County who completed the survey.

rubella vaccine (MMR).¹ Although this estimate is promising, it still leaves one quarter of U.S. children in this age group susceptible to serious childhood diseases and it indicates that vaccination coverage levels of United States preschool children are still below the national goal for the Year 2000.² Therefore, further improvement of vaccination coverage levels continues to be an important public health issue.

Many reasons have been cited for the number of undervaccinated children in the United States. Researchers have focused their attention on child/family-based barriers, systemic barriers, and provider barriers.^{3,4,5} Some factors of the child/family include low socioeconomic level, low parental education, and inadequate parental education about preventive health care.^{6,7} Although these factors are important and cannot be ignored, Wood et al, found that child and family factors were not important predictors of 2 year old children being up to date on immunizations.⁸ Instead, type of health insurance and source of well child care were important risk factors.

In addition, several studies have indicated that children visit their physicians an adequate number of times in the first two years of life and that if every opportunity to vaccinate was taken, immunization levels among preschoolers would be adequate.^{8,9} Weese and Krauss⁹ found that "barrier-free" well child care did not guarantee 90% vaccination levels of children. Instead, of the 2-year old children studied, 72% were considered up-to-date. They did find, however, that if the physicians would have taken advantage of all visits to vaccinate, 92% of the children would have completed the recommended series.

The "Standards for Pediatric Immunization Practices", published by the United States Department of Health and Human Services, stress the important role that providers have in raising the immunization levels of preschool-aged children.¹⁰ The Standards represent the type of practices that all providers who immunize children should strive for in order to protect the nation's children.

Because it is evident that providers play a critical role in the mission to get preschoolers vaccinated on time, it is important to assess the attitudes, knowledge, and behaviors regarding immunizations of those physicians who currently provide immunizations to children. Many of the children who do not have adequate vaccination levels are of families with low socioeconomic status; therefore, it is important to study physicians who provide health care services to this population.

The purpose of the present study was to ascertain the vaccination beliefs and practices of child-serving physicians who provide care to low income patients in suburban Cook County, Illinois.

METHODS

The study surveyed family practice and pediatric providers who practice in suburban Cook County, Illinois and who provide medical care to preschool-aged children from low-income families. The convenience sample of providers was identified from an Illinois Department of Public Aid list. During the Spring of 1994, a 34-item survey was pre-tested among a group of ten physicians. After some modifications were made to the survey, it was mailed to 109 physicians. One month later, a follow up letter was sent to the group of physicians asking the nonresponders for their cooperation in the completion of the survey.

The survey instrument was developed by researchers at the University of Illinois at Chicago, Maternal Child and Community Health Science Consortium, and administered by researchers at the Cook County Department of Public Health. The survey elicited information on physician demographic and practice attributes, general immunization practices and beliefs, and perceived barriers to immunization services for low income children. The survey consisted mainly of multiple choice and rating questions and included two open ended questions. Results of the survey were analyzed using Epi-Info.¹¹ All analyses presented are descriptive; data are described in frequencies and proportions.

RESULTS

Physician Demographic and Practice Characteristics

Sixty-two (56.9%) of a sample of 109 physicians responded to the survey. One additional physician responded but only completed the first two questions. Seventy percent of the 62 completed surveys that were received were from pediatricians while 17 (27.4%) identified family practice as their primary specialty. One physician indicated that internal medicine was his primary specialty. The demographic information that was elicited is displayed in Table 1. As shown, more males than females were surveyed and Asian physicians were overrepresented.

When asked about the percentage of their patient caseload that received Medicaid benefits, a range from one percent to 99 percent was reported with a median of 25 percent. All of the physicians except for one indicated that they have treated low income patients and all but two have participated in the State Medicaid Program. Sixty-one (98.4%) of the respondents reported that they accept Medicaid patients and 56 (90.3%)

TABLE 1

Characteristics of the Providers		
<i>Characteristic</i>	<i>n</i>	<i>(%)</i>
Specialty (Information available on only 62 physicians)		
Pediatrics	43	(69.4)
Family Practice	17	(27.4)
Internal Medicine	1	(1.6)
No Response	1	(1.6)
Sex		
Male	39	(62.9)
Female	23	(37.1)
Race/Ethnicity		
White	35	(56.5)
Asian	19	(30.6)
Hispanic	4	(6.5)
African American	3	(4.8)
No response	1	(1.6)
Medical training completed during:		
1950s	5	(8.1)
1960s	15	(24.2)
1970s	16	(25.8)
1980s	24	(38.7)
1990s	1	(1.6)
No Response	1	(1.6)

indicated that they treat medically indigent patients. Fifty-seven (91.9%) of the physicians reported that they have, at some time, reduced or waived fees for the medically indigent.

General Immunization Practices/Beliefs

Of the physicians surveyed, 60 (96.8%) reported that they offered immunizations to children in their practices. When asked about the type of visit at which they would immunize an eligible child, the majority of the respondents indicated that they would immunize during well child care, follow-up, and chronic illness visits but only 27% of them would during an acute care visit (Table 2).

Physicians were also asked if they monitor immunization status among children in their practice. Thirty-nine (62.9%) responded that they

TABLE 2

Physicians' Immunization Practices by Type of Visit

<i>Type of Visit</i>	<i>Willingness to Immunize</i>					
	<i>Yes</i>		<i>No</i>		<i>No Response</i>	
	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>
Well Child Care	59	(95.2)	1	(1.6)	2	(3.2)
Acute Care	17	(27.4)	43	(69.4)	2	(3.2)
Follow-up	48	(77.4)	12	(19.4)	2	(3.2)
Chronic Illness	38	(61.3)	22	(35.5)	2	(3.2)

have a mechanism for identifying children who are behind in immunizations, 16 (25.8%) responded that they do not, 6 responded that they do not know, and 1 did not respond. Table 3 displays the various mechanisms that the physicians indicated that they use to identify children who are behind in immunizations. The vast majority reported that they only review at the time of an office visit. Only 10 (16.1%) of the physicians reported that their office had completed a chart audit in the past three years. When asked about the percentage of children in their practice that were up-to-date on vaccinations, those respondents reported a range from 70% to 99% with a median of 85%.

When asked how they notify parents that their children are due for an immunization, 22 (35.5%) of the respondents reported that they do not notify parents. Twenty-three (37.1%) of the physicians indicated that they notify parents via a telephone call or letter. Nine physicians (14.5%) reported that they notify via other means such as office visits and seven physicians (11.3%) did not respond. Fifty (80.6%) of the physicians sur-

TABLE 3

Providers' Immunization Tracking Mechanisms

<i>Tracking Mechanism</i>	<i>n (N = 62)</i>	<i>(%)</i>
Review at time of office visit	43	(69.4)
Systematic chart review	14	(22.6)
No specific system	9	(16.1)
Computerized system	0	(0.0)

veyed reported that they provide a written vaccination schedule which includes the child's immunization record.

In addition, the physicians were asked, "if an 18 month old healthy child comes in for a preventive care visit with no history of previous immunizations and is due for DTP, OPV, MMR, and HIB, would you give all four immunizations during this one visit?". Forty-six (74.2%) of the respondents answered "yes". A combination of reasons was given for those who responded "no", including a concern with immunological response, parent objection, and prohibitive cost.

The physicians surveyed were presented with a variety of patient conditions and asked, "if a child is seen for a well-child visit and is due for the OPV, DTP, and MMR, would you give the vaccines given specific conditions?". As displayed in Table 4, the responses indicate that several of the specific conditions deter physicians from proceeding with immunization.

In order to determine when physicians feel that immunization histories should be taken and vaccines should be administered, the physicians surveyed were asked about specific situations, when no medical contraindications exist. Table 5 presents the responses. When asked about whose responsibility it is for the health care of the poor, 54 (87.1%) of the re-

TABLE 4

Physicians Willingness to Immunize Under Specified Patient Conditions*

<i>Condition</i> <i>N = 62</i>	<i>OPV</i>		<i>DTP</i>		<i>MMR</i>	
	% Yes	% No	% Yes	% No	% Yes	% No
Diarrhea (no dehydration)	34	60	53	42	58	35
Otitis Media (afebrile)	40	58	32	66	37	61
URI (afebrile)	79	18	76	21	79	18
Allergies	92	5	92	5	87	8
Immune compromised	11	81	66	23	32	55
<i>After immunization, history of:</i>						
swelling at site	NA	NA	89	8	89	8
fever < 105°F	89	10	66	29	87	11
seizures	74	23	2	95	68	26
irritability	89	5	73	24	90	5

* Percentage Yes/No totals do not equal 100 because of the small percentage of physicians who did not respond.

TABLE 5

Physician Responses to Timing of Immunization History Taking and Vaccine Administration

<i>Specific Situation</i>	<i>Physicians Agreed</i>		<i>Physicians Disagreed</i>		<i>No Response</i>	
	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>
<i>During hospitalization:</i>						
History taken	59	(95)	1	(2)	2	(3)
Vaccination	47	(75)	12	(19)	3	(5)
<i>During emergency room visit:</i>						
History taken	53	(86)	7	(11)	2	(3)
Vaccination	30	(48)	29	(47)	3	(5)
<i>During walk-in acute care office visit:</i>						
History taken	49	(79)	9	(15)	4	(7)
Vaccination	37	(60)	20	(32)	5	(8)

spondents indicated that it is the Government's responsibility. Fourteen (22.6%) felt that the County/City should be the principal source of medical care for the poor and 26 (41.9%) felt that the County/City should be the principal source of immunizations for the poor.

Perceived Barriers to Immunization Services

In an effort to ascertain the physicians' perceived barriers to immunization services for low income children, specific patient, system, and practice-based factors were presented to the physicians. Of those surveyed, 20 (32.2%) felt that the written consent is a barrier and 40 (64.5%) felt that the requirements for informed consent are excessive. Patients having a difficult time reading the consent form was listed as a barrier by 38 (61.3%) of the respondents.

Over half (51.6%) of those responding indicated that there were times during the last year when vaccines were not available at their practices. The vaccine reported as most frequently unavailable was the MMR vaccine.

When questioned about the concern about liability and belief that the National Vaccine Injury Act does not provide sufficient liability protection, 23 (37.1%) of the physicians agreed that liability was the primary

TABLE 6

Physician Perceived Barriers to Immunization for Low Income Children		
<i>Barriers</i>	<i>n</i>	<i>(%)</i>
<i>Perceived patient based barriers:</i>		
missed well child visits	55	(88.7)
parents delay making appt.	47	(75.8)
parents lack of education	39	(62.9)
(re:importance of immunization)		
immunization not parent priority	31	(50.0)
parents fear side effects	26	(41.9)
no consent	9	(14.5)
<i>Perceived systemic barriers:</i>		
fees for vaccine	40	(64.5)
lack of health insurance	38	(61.3)
incomplete immunization records	40	(64.5)
supply of vaccine	13	(21.0)
<i>Perceived practice barriers:</i>		
inability to track patients	43	(69.4)
behind in immunizations		
appointments hard to get on	17	(27.4)
short notice		
providers only think about	32	(51.6)
immunizations at well child visits		

reason why many private practitioners do not provide immunizations in their practices, while 38 (61.3%) of the respondents did not agree and one did not respond. Twenty-one percent of those surveyed felt that the National Vaccine Injury Act provides adequate protection while 15 (24.2%) felt that it does not, 32 (51.6%) were not sure, and 2 (1.6%) did not respond. Additional physician perceived barriers are displayed in Table 6.

DISCUSSION

This study found some provider practices and beliefs that may contribute to low vaccination coverage rates. First of all, the findings indicate that the physicians are not utilizing all types of visits to review immunization status and to consider administering needed vaccines. Most of the

respondents would immunize a child during a well child care or follow-up visit; however, the willingness to immunize during a chronic illness or acute care visit was not as strong.

Also, a majority of the study group agreed that immunization histories should be taken during hospitalization, emergency room visits, and walk-in acute care office visits; however, there was not as much agreement on whether vaccines should be administered at these times. Standard 4 of the "Standards for Pediatric Immunization Practices" addresses this problem by recommending that all providers take advantage of all clinical encounters to screen and immunize, if indicated.¹⁰ Szilagyi, et al¹², also found that the physicians they surveyed could improve vaccination rates if they followed this Standard and others more closely.

Although the importance of monitoring immunization status of patients by reviewing records, conducting audits, and operating a tracking system has been expressed by the National Vaccine Advisory Committee, the United States Public Health Service, and the American Academy of Pediatrics, this study, as well as others, reveal that many physicians' offices do not practice these measures.^{12,13}

Some lack of knowledge regarding true contraindications was found among the respondents. When presented with minor illnesses such as mild diarrhea, almost two-thirds of the physicians indicated that they would not immunize with OPV while more than half reported that they would not immunize a child with otitis media without fever with OPV, DTP, or MMR. It is evident that opportunities to vaccinate are missed because physicians view mild illnesses as contraindications. Other studies have also found that physicians may need additional education regarding which medical conditions should contraindicate specified immunizations.^{13,14,15} Wood et al¹⁵ found that the providers that they surveyed had important deficits not only in knowledge of appropriate contraindications but also regarding the immunization schedule.

Of all the barriers that were presented to the physicians studied, "missed well child visits" had the highest frequency of response. Although most of the respondents felt that "missed well child visits" was a major barrier to timely immunization, less than half of the respondents reported that they notify parents by telephone and/or letter that their child is due for an immunization. This is an important practice that could help improve immunization rates.

The written consent was also identified as a barrier and the group felt that the requirements were excessive. Since this survey was administered, the federal requirement for obtaining the signature of a patient, parent, or legal representative to acknowledge receipt of vaccine informa-

tional materials has been removed.¹⁶ Because the written consent was viewed as a barrier to immunization by these physicians, this change may help improve immunization rates.

This study was based on self-reported immunization practices and beliefs and it utilized a convenience sample of pediatricians and family practitioners; therefore, the findings cannot be generalized to all pediatricians or family practitioners. Another limitation that should be noted is the response rate of 56.9%. Similar studies involving a mailed survey to physicians have reported a range of response rates. Szilagyi et al¹² reported a response rate of 82% for pediatricians and 51% for family physicians while Wood et al¹⁵ reported a rate of 32% for private providers surveyed. It is possible that the respondents in the study differed from the nonrespondents in regard to demographic characteristics or practice patterns which might have impacted survey results. Unfortunately, data on nonrespondents were not available for analysis. Even with its limitations, this study provides potentially important information. The evidence suggests that some provider practices and beliefs need to be changed in order to improve vaccination coverage rates among preschool children. These findings merit further study to confirm and better characterize the needed changes.

Physicians who provide immunizations to children have the ability to improve the health status of our nation's preschool-aged children. In order to achieve the national goal of having 90% of the 2-year-old children up-to-date on immunizations, providers need to work on the following: utilizing all types of visits and medical encounters to provide necessary vaccines, monitoring the immunization status of all patients and reminding them when they are due for immunizations, and following only true medical contraindications. It is important that researchers continue to investigate different approaches in helping providers achieve these goals.

Possible approaches include offering physician incentives for high immunization levels as well as the establishment of immunization tracking with reminder systems as an integral component of preventive health care services.

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